# TS7001 Product Brief

## A Micropower, 2-channel, 187.5-ksps, Serial-Output 12-bit SAR ADC

## FEATURES

- Pin-for-pin, 1.5x Faster Upgrade to AD7887
- Single-supply Operation: +2.7V to +3.6V
- INL: ±1LSB
- One or Two Single-ended Analog Inputs
- Internal Wide-bandwidth Track-and-Hold
- Integrated +2.5-V Reference
- Flexible Power/Throughput-Rate Management
  - 0.85mA at 187.5ksps (Internal VREF ON)
  - 0.7mA at 187.5ksps (Internal VREF OFF)
- Shutdown-mode Supply Current: 1µA (max)
- SPI®/QSPI™/MICROWIRE™/DSP-Compatible Serial Interfaces[1]
- Operating Temperature Range: -40ºC to +85ºC
- 8-pin MSOP Packaging

## APPLICATIONS

Instrumentation and Control Systems
High-Speed Modems
Battery-powered systems:
Personal Digital Assistants, Medical Instruments, Mobile Communications

## DESCRIPTION

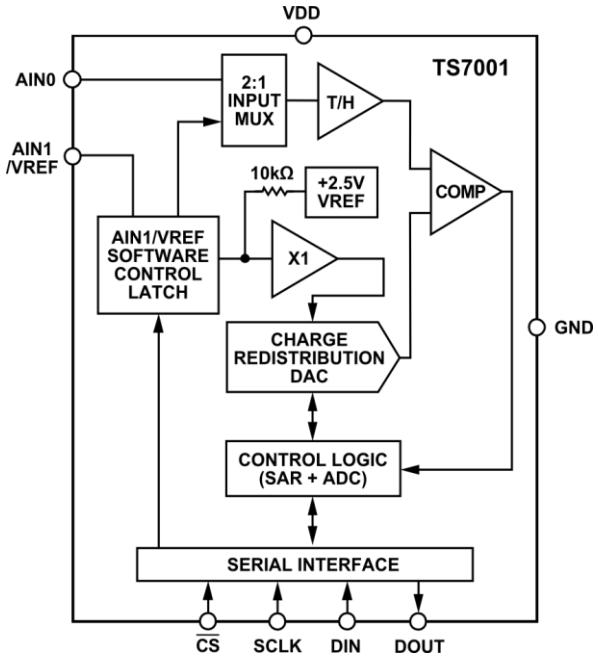
The TS7001 – a pin-for-pin, 1.5x faster alternate to the AD7887 - is a self-contained, 2-channel, high-speed, micropower, 12-bit analog-to-digital converter (ADC) that operates from a single +2.7V to +3.6V power supply. The TS7001 is capable of a 187.5-ksps throughput rate with an external 3MHz serial clock and draws 0.85mA supply current.

The wideband input track-and-hold acquires signals in 500ns and features a single-ended sampling topology. Output data coding is straight binary and the ADC is capable of converting full power signals up to 10 MHz. The ADC also contains an integrated 2.5V reference or the VREF pin can be overdriven by an external reference.

The TS7001's provides one or two analog inputs each with an analog input range from 0 to $V_{REF}$. In two-channel operation, the analog input range is 0V to VDD. Efficient circuit design ensures low power consumption of 2mW (typical) for normal operation and 3µW in power-down operation.

The TS7001 is fully specified from -40ºC to +85ºC and is available in 8-pin MSOP package.

## FUNCTIONAL BLOCK DIAGRAM




[1] SPI and QSPI are trademarks of Motorola, Inc. MICROWIRE is a trademark of National Semiconductor Corporation.

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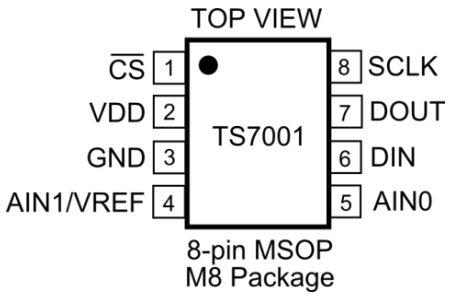
## PACKAGE/ORDERING INFORMATION




| ORDER NUMBER | PART MARKING | CARRIER | QUANTITY |
|---|---|---|---|
| TS7001IM8TP | TADF | Tube | 50 |
| TS7001IM8T | | Tape & Reel | 2500 |

**Lead-free Program:** Touchstone Semiconductor supplies only lead-free packaging.

Consult Touchstone Semiconductor for products specified with wider operating temperature ranges.